

What is claimed is:

1. A flat panel display comprising:
 - a light emitting device;
 - a switching thin film transistor including a semiconductor active layer having at least a channel area for transferring a data signal to the light emitting device; and
 - a driving thin film transistor including a semiconductor active layer having at least a channel area for driving the light emitting device so that a predetermined current flows through the light emitting device according to the data signal,
wherein with respect to a direction of any grain boundary, the channel area of the
- 10 switching transistor is situated along a first direction and the channel area of the driving transistor is situated along a second direction, and
wherein a direction of current flow in the channel area of the switching thin film transistor is different from a direction of current flow in the channel area of the driving thin film transistor with respect to any grain boundary.
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2. The flat panel display of claim 1, wherein the direction of current flow in the channel area of the switching thin film transistor and the direction of current flow in the channel area of the driving thin film transistor are formed so that current mobilities in the channel areas of the switching thin film transistor and the driving thin film transistor are different from each
20 other.
3. The flat panel display of claim 2, wherein the direction of current flow in the channel area of the switching thin film transistor and the direction of current flow in the channel

area of the driving thin film transistor are formed so that the current mobility in the channel area of the switching thin film transistor is larger than the current mobility in the channel area of the driving thin film transistor.

5 4. The flat panel display of claim 1, wherein the active layer is formed using a polycrystalline silicon.

10 5. The flat panel display of claim 4, wherein the polycrystalline silicon has anisotropic crystal grains.

15 6. The flat panel display of claim 5, wherein a crystal grain of the polycrystalline silicon has a first length which is at least 1.5 times longer than a second length in a direction which is substantially perpendicular to a direction of the first length.

20 7. The flat panel display of claim 4, wherein the channel area of the switching thin film transistor and the channel area of the driving thin film transistor have polycrystalline silicon crystal grains, the silicon grains include longer grain boundaries situated along a direction which makes a first angle with a direction of current flow in the channel area of the switching transistor and a second angle with a direction of current flow in the channel area of the driving transistor .

25 8. The flat panel display of claim 7, wherein the direction of current flow in the channel area of the switching transistor are formed so that the second angle is larger than the first angle.

9. The flat panel display of claim 4, wherein the polycrystalline silicon includes primary grain boundaries which are arranged substantially parallel to each other, and side grain boundaries of anisotropic grains which extend between the primary grain boundaries in a direction substantially perpendicular to the primary grain boundaries, wherein adjacent side grain boundaries of anisotropic grains have an average interval therebetween which is shorter than average intervals between adjacent primary grain boundaries.

10. The flat panel display of claim 9, wherein the direction of current flow in the channel area of the switching thin film transistor makes a first angle with a direction along which the primary grain boundaries are situated and the direction of current flow in the channel area the driving thin film transistor makes a second angle with the direction along which the primary grain boundaries are situated.

15 11. The flat panel display of claim 10, wherein the first angle is larger than the second angle.

12. The flat panel display of claim 9, wherein an angle of the side grain boundaries of anisotropic grains in the polycrystalline silicon of the channel area of the switching thin film transistor with the direction of current flow in that channel area of the switching thin film transistor is in a range of about - 45° to about 45°.

13. The flat panel display of claim 9, wherein an angle of the primary grain boundaries with the direction of current flow in the channel area of the switching thin film transistor is about 90°.

5 14. The flat panel display of claim 9, wherein an angle of the side grain boundaries of anisotropic grains with the direction of current flow in the channel area of the driving thin film transistor is in a range of about 45° to about 135°.

10 15. The flat panel display of claim 9, wherein an angle of the primary grain boundaries of the polycrystalline silicon which form the channel area of the driving thin film transistor with the direction of current flow in the channel area is about 0°.

15 16. A flat panel display comprising:
a light emitting device;
a switching thin film transistor which is formed using a polycrystalline silicon and includes a semiconductor layer having a channel area for transferring a data signal to the light emitting device; and
a driving thin film transistor which is formed using a polycrystalline silicon and includes a semiconductor layer having a channel area for driving the light emitting device so that a predetermined amount of current flows through the light emitting device,

20 wherein the channel area of the switching thin film transistor a first angle between a length direction of polycrystalline silicon grains and a direction of current flow in the channel

area and the channel area of the driving thin film transistor has a second angle between a length direction of polycrystalline silicon grains and a direction of current flow in the channel area.

17. The flat panel display of claim 16, wherein the first angle is larger than the second
5 angle.

18. The flat panel display of claim 16, wherein the polycrystalline silicon includes
anisotropic crystal grains.

10 19. The flat panel display of claim 18, wherein the length of the crystal grain of the
polycrystalline silicon is at least 1.5 times longer than a width of the crystal grain.

20. The flat panel display of claim 16, wherein the second angle is larger than the first
angle.

15 21. The flat panel display of claim 16, wherein the polycrystalline silicon includes
substantially parallel primary grain boundaries, and side grain boundaries of anisotropic grains
which extend substantially perpendicularly between the primary grain boundaries and have an
average interval between the side grain boundaries of anisotropic grains is shorter than an
20 average interval between the primary grain boundaries.

22. The flat panel display of claim 21, wherein an angle between the primary grain
boundaries of the polycrystalline silicon and the direction of current flow in the channel area of

the switching thin film transistor and there is a second angle between the primary grain boundaries of the polycrystalline silicon and the direction of current flow in the channel area of the driving thin film transistor and the first angle is different from the second angle.

5 23. The flat panel display of claim 21, wherein the first angle is larger than the second angle.

10 24. The flat panel display of claim 21, wherein an angle of the side grain boundaries of anisotropic grains of the polycrystalline silicon in the channel area of the switching thin film transistor with the direction of current flow in that channel area is in a range of about 45° to about 45°.

15 25. The flat panel display of claim 21, wherein the first angle is about 90°.

20 26. The flat panel display of claim 21, wherein an angle of the side grain boundaries of anisotropic grains with the direction of current flow in the channel area of the driving thin film transistor is in a range of about 45° to about 135°.

25 27. The flat panel display of claim 21, wherein the second angle is about 0°.